

Intimate Partner and General Aggression Perpetration Among Combat Veterans Presenting to a Posttraumatic Stress Disorder Clinic

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This study examined rates and correlates of intimate partner and general aggression perpetration among 236 male combat veterans seeking services in a Veteran's Affairs posttraumatic stress disorder (PTSD) clinic. Approximately 33% of those in an intimate relationship reported perpetrating partner physical aggression in the previous year, and 91% reported partner psychological aggression. Comparable rates were found for general aggression perpetration among partnered and nonpartnered veterans. PTSD symptoms as well as symptoms of depression were associated with aggression across subgroups and forms of aggression, and PTSD symptoms reflecting arousal and lack of control were generally the strongest predictor of aggression. Findings indicate a need for additional aggression screening and intervention development for this population, and highlight the targeting of heightened arousal and lack of behavioral control in aggression interventions.

Keywords: aggression, domestic violence, veterans, posttraumatic stress disorder

Interest in noncombat-related aggression perpetrated by combat veterans has increased in part because of growing media reports of violence against civilians by returning American soldiers (Sontag & Alvarez, 2008). Although representative data on different forms of aggression among veterans is scant, evidence suggests that veterans engage in intimate relationship aggression at elevated rates. For example, a recent review reported that veterans engage in intimate partner physical aggression at rates that are up to three times higher than those reported in representative civilian sample studies, though such rates vary considerably across samples (Marshall, Panuzio, & Taft, 2005). Interpersonal aggression causes significant victim injury and death in extreme cases, and is associated with a range of negative psychosocial outcomes (Campbell, 2002; Hathaway et al., 2000; National Center for Injury Prevention & Control, 2003). Further, this aggression is associated with significant occupational and medical costs. For example, intimate partner physical violence victimization results in an estimated loss of 9.5 million days of paid work per year, and the estimated direct

medical costs for victims of intimate partner rape, stalking, and physical assault is 4.1 billion dollars per year (National Center for Injury Prevention & Control, 2003).

Given the costs of aggression and the possible elevated risk among veterans, interpersonal aggression is increasingly viewed as a serious public health concern among this population. However, little empirical work has documented the scope of this problem in medical settings serving veterans, and even less work has focused on examining both intimate partner and general aggression perpetration among veterans. Moreover, almost all of the research on aggression among military populations has focused on physical aggression. We have very little understanding of the rates of nonphysical forms of aggression, or the correlates of such aggression. This is problematic in light of accumulating research suggesting that psychological aggression victimization is strongly associated with negative mental and physical health outcomes, with recent evidence suggesting that, when physical and psychological aggression are considered together, psychological aggression is the stronger predictor of symptoms of posttraumatic stress disorder (PTSD) and poor health outcomes such as chronic disease and substance abuse (Coker et al., 2002; Taft, Murphy, King, Dedeyn, & Musser, 2005). Finally, very few investigations among this population have used validated, comprehensive measures of aggression. Therefore, we attempted to document rates and correlates of both physical and psychological intimate partner and general aggression using gold standard measures among a sample of combat veterans seeking services for PTSD in a large Veteran's Affairs (VA) medical center clinic.

The examination of aggression rates and correlates in those receiving care related to possible PTSD is highly appropriate given

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that PTSD has consistently been shown to represent a robust correlate of aggression. Higher levels of intimate partner aggression are consistently found among veterans with PTSD compared with those without the disorder (Marshall et al., 2005). In the National Vietnam Veterans Readjustment Study (NVVRS; Kulka et al., 1990), a nationally representative survey of Vietnam veterans, approximately one third of PTSD-positive male veterans were identified as partner violent by their female partners during the previous year. This rate was two-to-three times higher than among men without PTSD (Jordan et al., 1992) and men in representative community samples (Straus & Gelles, 1990). Large associations have also been reported between PTSD symptom severity and partner aggression severity (Taft, Street, Marshall, Dowdall, & Riggs, 2007). Moreover, PTSD symptoms statistically account for the influence of trauma variables on partner aggression, and strongly predict partner aggression even while controlling for a range of other factors, such as early life stressors, adulthood trauma, depression, personality disorders, war-zone exposure, and social information processing deficits (Orcutt, King, & King, 2003; Taft, Schumm, Marshall, Panuzio, & Holtzworth-Munroe, 2008).

Some investigations have similarly highlighted the salience of PTSD with respect to general aggression. In their sample of help-seeking male Vietnam veterans, Beckham, Feldman, Kirby, Hertzberg, and Moore (1997) found that approximately three fourths of those with PTSD had engaged in general physical aggression over the previous year, as measured by the Conflict Tactics Scale (Straus, 1979), and these men reported an average of 22 aggressive acts over that time. In contrast, a rate of 17% was found for non-PTSD veterans, with an average of .2 aggressive acts. Begic and Jokic-Begic (2001) reported general aggression rates of 18.7 and 2.7 for male combat veterans with and without PTSD, respectively, based on clinician judgments. McFall, Fontana, Raskind, and Rosenheck (1999) found that male Vietnam veteran psychiatric inpatients with PTSD were significantly more likely than Vietnam veteran psychiatric inpatients without PTSD to engage in general aggression in the four months before hospitalization (79% for veterans with PTSD; 33% for those without PTSD). In this study, aggression referred to the destruction of property, use of threats of violence with and without a weapon, and physical fighting.

There has been growing interest in the disaggregation of PTSD symptom constellations, with some evidence suggesting that hyperarousal symptoms represent a relatively strong prospective predictor of other components of the posttraumatic response (Schell, Marshall, & Jaycox, 2004). These symptoms of increased anger, anxiety, and arousal have been shown to be particularly strongly associated with aggression among samples of veterans. King and King (2004) used a structural equation modeling (SEM) framework using data derived from the NVVRS and found that only hyperarousal symptoms were associated with intimate partner physical aggression when considered together with PTSD emotional numbing symptoms. Taft et al. (2007) also used SEM among a large sample of male Vietnam veterans and similarly found that the hyperarousal PTSD symptom cluster evidenced the strongest relationship with general physical aggression. Taken together, these findings are consistent with a larger literature indicating a link between heightened arousal and reactivity with aggression (Lorber, 2004), as well as theory suggesting that perceived phys-

iological arousal intensifies angry experiences and increases aggression when attributed to a provocative situation (Zillman, Katcher, & Milavsky, 1972).

In addition to examining the effects of exposure to combat and PTSD symptomatology, it is also important to examine the unique influence of depression on aggression. In examining data obtained from the NVVRS (Kulka et al., 1990), Taft, Pless et al. (2005) demonstrated that the presence of comorbid depression was among the strongest risk factors for intimate partner physical aggression perpetration among veterans with PTSD. In another recent investigation, Taft and colleagues (2007) found depressive symptoms to partially account for the influence of PTSD symptoms on general physical aggression in a clinical sample of veterans. These findings are consistent with several other studies documenting relationships between measures involving negative affect and aggression (O'Donnell, Cook, Thompson, Riley, & Neria, 2006), as well as aggression theory that highlights the role of negative affect (Berkowitz, 1990).

We examined rates of intimate partner and general physical and psychological aggression in this clinical sample of male combat veterans and tested the following hypotheses:

- (a) Measures assessing combat exposure, PTSD symptoms, and depressive symptoms would be positively associated with the aggression outcomes at the bivariate level.
- (b) Among the PTSD symptom groupings, symptoms reflecting hyperarousal and loss of control would exhibit the strongest associations with aggression.
- (c) PTSD and depressive symptoms would each evidence significant unique associations with the aggression outcomes when examined together as predictors.

Method

Participants

Participants were drawn from a larger potential pool of 510 male veterans who were screened at the National Center for PTSD/VA Boston Healthcare System (NCPTSD-Boston) between January 2003 and January 2008 for possible evaluation and/or treatment in the clinic. The NCPTSD-Boston clinic serves male veterans in the Greater Boston area. Veterans may self-refer to the clinic for assessment and treatment of PTSD, or they may be referred by another clinic within the VA. Each veteran is scheduled for an initial screening appointment with a clinician, after which they may be accepted for evaluation and/or treatment at the NCPTSD clinic, or they may be referred out to another clinic within the VA if the primary problem is not PTSD. During the time period of this data collection, patients received a diagnostic PTSD evaluation as part of the intake process, whether the referral was for diagnosis or treatment.

Of the 510 veterans completing the initial screening appointment, 333 completed the intake process in the NCPTSD clinic. This study includes 236 male veterans who completed the psychometrics for the full evaluation and who indicated that they had been exposed to combat by endorsing any item on the Combat Exposure Scale (Keane et al., 1989). To examine whether there were different predictors for intimate partner and general aggres-

sion, the sample was divided into two groups: veterans who reported being in an intimate relationship during the year before the assessment ($n = 161$) and those who did not ($n = 75$).

The average age of the sample was 53 ($SD = 12$, range 23–84). The self-reported racial composition of the sample was 76% White; 16% African American; 2% Hispanic, American Indian, or Alaskan Native; and 3% other. Participants indicated whether or not they had been in an intimate relationship within the past year, but were not asked to identify gender of the partner. A little over two thirds of the participants (68%) reported being in an intimate relationship. Forty-five percent of the participants were married, 29% were divorced or separated, 11% were never married, 4% had a live-in relationship partner, and 1% was widowed. Eras of service were as follows: 63% Vietnam War, 11% Operation Desert Storm, 5% Operation Iraqi Freedom, 1% Operation Enduring Freedom, 2% Korean War, 2% World War II, and 9% served during other eras. Fifty percent were veterans of the Army, 24% Marines, 7% Navy, 5% Air Force, and 5% National Guard. Details of military service were routinely verified during diagnostic assessments by inspection of veterans' military records (e.g., DD-214 form).

Procedures

This research was approved by the Institutional Review Board of the VA Boston Healthcare System. Data were collected in the context of a multisession diagnostic evaluation aimed at assessing the presence of current combat-related PTSD. Informed consent was obtained from participants after providing an explanation of how the data might be used in future studies. Evaluations were conducted by doctoral-level clinical psychologists or predoctoral clinical psychology trainees. A diagnosis of PTSD was determined by the clinician based on the results of the full evaluation, which included a psychosocial history, mental status examination, the Clinician Administered PTSD Scale (a structured diagnostic interview for PTSD) (Blake et al., 1990), as well as a battery of psychometric measures. Of the veterans with partners, 78% received a diagnosis of PTSD, and 78% of veterans without partners received a PTSD diagnosis.

Measures

Combat Exposure Scale. The Combat Exposure Scale (CES; Keane et al., 1989) is a 7-item scale designed to measure veterans' experience of combat-related war stressors, including exposure to danger, loss of life, or severe physical injury. The average CES score for the full sample was 19.72 ($SD = 10.11$). The internal consistency estimate for this sample was .83.

Mississippi Scale for Combat-Related PTSD. This 35-item self-report instrument assesses the reexperiencing, avoidance and numbing, and hyperarousal criteria for PTSD, as well as features commonly associated with PTSD, such as substance abuse, depression, and suicidality (Keane, Caddell, & Taylor, 1988). Previous studies have supported four, factor-analytically derived subscales among veteran samples: reexperiencing/avoidance (11 items), withdrawal/numbing (11 items), arousal/lack of control (7 items), and self-persecution (5 items) (King & King, 1994). One item was removed for this study ("If someone pushes me too far, I am likely to become violent") because it overlapped with the

aggression outcomes. The mean total score for this sample was 112.92 ($SD = 21.63$). Internal consistency estimates for this sample were .92 for the total score, and .83, .82, .74, and .64 for the reexperiencing/avoidance, withdrawal/numbing, arousal/lack of control, and self-persecution subscales, respectively.

Beck Depression Inventory-2nd Edition. The Beck Depression Inventory-2nd Edition (BDI2; Beck, Epstein, Brown, & Steer, 1988) is a 21-item self-report measure that is widely used to assess the attitudes and symptoms of depression. For each item, participants are asked to choose which of four statements of increasing symptom severity best describes how they have been feeling in the 2 weeks before the assessment. The average score for this sample was 28.39 ($SD = 12.79$). The internal consistency reliability estimate for this sample was .92.

Revised Conflict Tactics Scales. Intimate partner aggression was measured using the 12-item Physical Assault subscale and the 8-item Psychological Aggression subscale of the Revised Conflict Tactics Scales (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Participants with partners were asked to rate the frequency with which they had engaged in behaviors toward their partner in the past year on a scale ranging from 0 (*never*) to 6 (*more than 20 times*). Items were recoded to reflect the estimated frequency of the behavior (e.g., 3 to 5 times received a score of 4) and then summed. For each CTS2 item, participants were also asked whether or not they had engaged in that behavior toward anyone else (other than a relationship partner) during the past year, and positively endorsed items were summed to reflect general aggression. General aggression ratings could thus refer to acts of aggression perpetrated against multiple individuals. Partnered veterans reported an average of 2.49 ($SD = 5.68$) acts of physical and 29.72 ($SD = 30.14$) acts of psychological partner aggression in the past year. Partnered veterans also reported an average of 1.44 ($SD = 2.78$) acts of physical and 2.83 ($SD = 2.12$) acts of psychological aggression against someone other than their partner. Nonpartnered veterans reported an average of 1.48 ($SD = 2.55$) acts of general physical and 3.35 ($SD = 2.23$) acts of general psychological aggression. In this study, CTS2 internal consistency estimates were .57 for physical and .79 for psychological partner aggression. For aggression toward someone other than one's partner, in the partnered veterans groups, reliability estimates were .92 and .80 for physical and psychological aggression, respectively. In the nonpartnered veterans group, they were .88 and .81 for general physical and psychological aggression, respectively.

Statistical Analysis

Analyses used continuous PTSD scores from the Mississippi Scale rather than clinician-determined PTSD diagnosis because veterans who did not have a diagnosis of PTSD reported symptoms approaching established PTSD diagnostic cutoffs. A cutoff of 45 on the Clinician Administered PTSD Scale (CAPS) is commonly used in research, and the average CAPS score for the no-PTSD group in this sample was 44.22 ($SD = 21.30$). The average Mississippi Scale score for the no-PTSD group was 97.65 ($SD = 18.34$), approaching the recommended cutoff of 107 (Keane et al., 1988). Because the no-PTSD group reported substantial PTSD symptoms, it was decided that they did not provide a meaningful comparison group for analyses.

Analyses were conducted using Mplus, version 5.1 (Muthen & Muthen, 1998–2008). Descriptive statistics were computed for all study variables. Next, bivariate correlations were computed between the potential predictor variables and the aggression outcomes. A series of multiple regressions then examined the relative associations between the predictor variables that showed significant bivariate correlations with the aggression outcomes. To determine the components of PTSD that were most strongly associated with the aggression outcomes, Mississippi Scale subscale scores were used in the multiple regressions (rather than overall scores). Six regressions were conducted in total, corresponding with the six aggression outcomes (partnered veteran physical partner aggression, partnered veteran psychological partner aggression, partnered veteran general physical aggression, partnered veteran general psychological aggression, nonpartnered veteran general physical aggression, and nonpartnered veteran general psychological aggression). Effect sizes were interpreted in terms of Cohen's guidelines (Cohen, 1988).

To include participants who had partially completed data, these analyses used expectation maximization algorithm parameter estimates. This strategy for handling missing data offers an unbiased method for enhancing inferential power when missingness is judged to be "missing at random" or "missing completely at random." In the current study, the covariance coverage values, which indicate the percentage of the data available to estimate each pairwise relationship, were between 85% and 100%, well above recommended minimums (Muthen & Muthen, 1998–2008).

Results

Table 1 presents item-level and overall rates for aggression. Among combat veterans involved in an intimate relationship ($n = 161$), 33% engaged in physical aggression toward their partner in the previous year, and 91% engaged in psychological aggression toward their partner. Approximately one third of both partnered and nonpartnered combat veterans engaged in general physical aggression in the previous year (32% and 39%, respectively), and the majority engaged in general psychological aggression (81% for partnered veterans, 87% for nonpartnered veterans).

Bivariate associations between the correlates of interest and the aggression outcomes are presented in Table 2. As hypothesized, depressive and total PTSD symptoms both evidenced significant associations with indices of aggression across the subgroups. For both sets of correlates, associations were generally in the small to medium range in magnitude. Regarding the separate PTSD symptom cluster scores, as expected, the arousal/lack of control subscale showed the strongest associations, with effect sizes in the medium to large range for all outcomes except physical partner aggression (small effect). The reexperiencing/avoidance subscale was also significantly associated with all aggression outcomes except partner psychological aggression, showing small to medium effect sizes for most associations. Withdrawal/numbing symptoms were generally more strongly associated with indices of psychological aggression, and the self-persecution subscale was only associated with

Table 1
Item Level and Overall Rates for Past Year Aggression Among Combat Veterans

	Partnered veterans ($n = 161$)				Nonpartnered veterans ($n = 75$)	
	Partner aggression		General aggression		General aggression	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
CTS2 physical aggression						
Threw something that could hurt	17	10.6	17	10.6	13	17.3
Twisted arm or hair	15	9.4	15	9.4	7	9.3
Pushed or shoved	37	23.1	35	21.9	19	25.3
Grabbed	37	23.1	36	22.6	19	25.3
Slapped	14	8.7	23	14.4	8	10.7
Kicked	0	0.0	11	6.9	5	6.7
Punched or hit	9	5.7	25	15.8	12	16.0
Choked	6	3.8	9	5.7	4	5.3
Slammed against a wall	11	6.9	23	14.5	13	17.3
Beat up	1	0.6	23	14.3	7	9.3
Burned or scalded	0	0.0	0	0.0	1	1.3
Used a knife or gun	1	0.6	12	7.5	3	4.0
Any aggression	53	32.9	52	32.3	29	38.7
CTS2 psychological aggression						
Insulted or swore	124	77.0	116	72.0	60	80.0
Shouted or yelled	139	86.3	125	77.6	59	78.7
Stomped out of room or house or yard during a disagreement	112	69.6	61	37.9	36	48.0
Did something to spite	71	44.1	54	34.0	29	38.7
Called fat or ugly	20	12.4	34	21.3	23	30.7
Destroyed something belonging to the other person	32	19.9	19	11.9	12	16.0
Accused of being a lousy lover	33	20.5	8	5.0	5	6.7
Threatened to hit or throw something	33	20.5	40	24.8	27	36.0
Any aggression	147	91.3	129	80.6	65	86.7

Note. Abbreviation: CTS2, Revised Conflict Tactics Scale.

Table 2
Bivariate Correlations Between Symptom Severity and Aggression

	Partnered veterans (<i>n</i> = 161)				Nonpartnered veterans (<i>n</i> = 75)	
	Partner aggression		General aggression		General aggression	
	Physical	Psychological	Physical	Psychological	Physical	Psychological
BDI2	.17*	.25**	.21*	.26**	.32*	.45**
CES	.08	.12	.11	.17*	-.13	-.05
MISS total	.19*	.23**	.24**	.33**	.38**	.43**
Reexperiencing/avoidance	.24**	.13	.24**	.32**	.29*	.27*
Withdrawal/numbing	.13	.20*	.12	.25**	.33**	.41**
Arousal/lack of control	.18*	.35**	.30**	.38**	.42**	.52**
Self-persecution	.03	.09	.17*	.10	.26*	.24*

Note. BDI2, Beck Depression Inventory, 2nd Edition; CES, Combat Exposure Scale; MISS, Mississippi Combat-Related PTSD Scale.

p* < .05. *p* < .01.

general physical aggression in both groups and with general psychological aggression among nonpartnered veterans (small effects). Finally, in contrast to expectations, combat exposure evidenced only a small, significant positive association with general psychological aggression among partnered veterans.

Results from analyses examining the relative predictive abilities of the correlates of physical and psychological aggression among partnered veterans are presented on Table 3. When depressive symptoms, reexperiencing/avoidance, and arousal/lack of control scores were entered together into a regression equation with physical partner aggression as the dependent variable, only the reexperiencing/avoidance subscale score remained significant. Overall, this model was not significant, accounting for 6% of the variance in physical partner aggression. In the regression for general physical aggression among partnered veterans, self-persecution was included along with

the variables mentioned above. Only arousal/lack of control remained significant when considered together with the other three predictors, and together these predictors accounted for 10% of the variance in this outcome.

Next, the variables associated with psychological aggression among partnered veterans were examined (see Table 3). Depressive symptoms, withdrawal/numbing symptoms, and arousal/lack of control symptoms were entered together into a multiple regression predicting intimate partner psychological aggression. Only arousal/lack of control remained significant, accounting for 12% of the variance in the outcome. When depressive symptoms, combat exposure, and three PTSD subscales were entered together into a regression model predicting general psychological aggression, again, only arousal/lack of control remained significant, and the predictors together accounted for 18% of the variance in the outcome.

Table 3
Physical and Psychological Aggression Among Veterans With Partners

Predictors	Partner aggression			General aggression		
	β	<i>t</i>	Partial <i>r</i>	β	<i>t</i>	Partial <i>r</i>
Physical						
BDI2	.00	−0.01	.00	−.02	−0.16	.01
MISS						
Reexperiencing/avoidance	.21*	2.03	.16	.11	1.10	.09
Arousal/lack of control	.04	0.41	.02	.24*	2.22	.17
Self-persecution	—	—	—	.00	0.02	.01
Model Fit		$R^2 = .06, ns$			$R^2 = .10^*$	
Psychological						
BDI2	.09	0.71	.01	.07	.53	.04
CES	—	—	—	.14	1.78	.14
MISS						
Reexperiencing/avoidance	—	—	—	.14	1.35	.11
Withdrawal/numbing	−.07	−0.54	.04	−.09	−0.78	.08
Arousal/lack of control	.33**	3.12	.24	.30**	2.91	.23
Model fit		$R^2 = .12^*$			$R^2 = .18^{**}$	

Note. Empty cells indicate that the variable was not included in the model because it was not significant in the bivariate correlations. Abbreviations: BDI2, Beck Depression Inventory, 2nd Edition; CES, Combat Exposure Scale; MISS, Mississippi Combat-Related PTSD Scale.

p* < .05. *p* < .01.

Finally, correlates of general physical and psychological aggression among veterans without partners were examined (see Table 4). When depressive symptoms and the four PTSD subscales were entered together predicting general physical aggression, none of the variables emerged as significant. When the same variables were entered together predicting general psychological aggression, only arousal/lack of control remained statistically significant and this model accounted for almost 30% of the variance in the outcome.

Discussion

Results indicate high aggression rates among this clinical sample of male combat veterans. One third of partnered veterans reported that they had engaged in physical partner aggression in the past year, and 91% reported psychological partner aggression. Rates for intimate partner physical aggression are very comparable to those reported in the nationally representative NVVRS (Kulka et al., 1990) for Vietnam veterans with PTSD (Jordan et al., 1992), and are almost three times the rate for male-perpetrated partner aggression in nationally representative community samples (Straus & Gelles, 1990). Rates for intimate partner psychological aggression perpetration were also substantially larger than those reported for men in nationally representative community studies (Stets, 1990). In contrast to these representative studies, we relied on self-reports of aggression, which represent underreports of aggression relative to collateral reports (Moffitt et al., 1997). Thus, it is likely that the high partner aggression rates found in this study may represent underestimates.

Approximately one third of veterans in both the partnered and nonpartnered groups reported that they engaged in general physical aggression in the past year (32% and 39%, respectively), and the majority in both groups (over 80%) engaged in general psychological aggression. Little normative data on general aggression is available from the general population, and rates of general aggression among military samples vary widely depending on the specific nature of the sample and the aggression measure used (Beckham et al., 1997; Begic & Jokic-Begic, 2001; McFall et al., 1999). The current study adds to this literature in utilizing the most widely used behavioral measure of aggression, and also by assessing psychological aggression perpetration, which has been largely overlooked in military and veteran samples.

Consistent with expectations, significant bivariate associations were obtained across outcomes for the PTSD symptom and de-

pressive symptom correlates. Associations for combat exposure were generally weaker, with significant associations found only for general psychological aggression among partnered veterans. In addition, consistent with hypotheses, PTSD symptoms reflecting hyperarousal and a lack of control were generally the strongest predictor of the aggression outcomes relative to the other PTSD symptom groupings, both at the bivariate level and when considered together in regression analyses. Moreover, arousal and lack of control symptoms were associated with a number of the aggression outcomes even in light of the other significant predictors. Depressive symptoms, on the other hand, did not evidence any unique association with the aggression outcomes, contrary to expectations.

Limitations

The cross-sectional design used limits the ability to draw causal conclusions. We also were unable to directly compare those with and without PTSD on aggression given the high symptom levels reported among those with subthreshold PTSD. It is also important to note that study findings may not generalize to other geographical areas or clinical sites, or those that are composed of veterans from different eras. This sample was largely comprised of Vietnam veterans, who may differ from more contemporary veterans in terms of demographic and background factors, forms of trauma exposure, the length of deployments and number of redeployments, and postdeployment environment. Unfortunately, there were not large enough numbers of veterans from the different eras to conduct meaningful comparisons in this study.

Further, we examined only male-perpetrated aggression. It is also important to better understand women veterans' aggression, particularly given that the number of women in the military is rapidly growing. Although women's aggression may be less severe and produce fewer injuries, women may be as likely to engage in relationship aggression as men (Archer, 2000), and this aggression may be associated with a range of negative consequences for the recipient (Hines & Malley-Morrison, 2001). The examination of women's aggression is also important in light of findings that aggression is often bidirectional in relationships, and mutually violent couples tend to evidence higher levels of aggression severity than when the aggression is unidirectional (Chrysos, Taft, King, & King, 2005; Teten, Sherman, & Han, 2009). Future investigations should also incorporate diagnostic interviews to

Table 4
Multiple Regression Analyses Predicting Aggression Among Veterans Without Partners

Predictors	Physical aggression			Psychological aggression		
	β	t	Partial r	β	t	Partial r
BDI2	-.00	-0.01	.00	.14	0.79	.09
MISS						
Reexperiencing/avoidance	.01	0.04	.00	-.12	-0.87	.10
Withdrawal/numbing	-.00	-0.02	.00	.04	0.22	.03
Arousal/lack of control	.40	1.86	.22	.51**	2.57	.29
Self-persecution	.03	0.23	.03	-.07	-0.54	.06
Model fit		$R^2 = .18^*$			$R^2 = .30^{**}$	

Note. BDI2, Beck Depression Inventory, 2nd Edition; MISS, Mississippi Combat-Related PTSD Scale.

* $p < .05$. ** $p < .01$.

more fully investigate the impact of psychopathology on aggression, as well as an assessment of traumatic brain injury, which is elevated in contemporary cohorts of soldiers (Hoge et al., 2008) and which may interact with PTSD to increase the likelihood of impulsive behavior and aggression. Other possible correlates such as substance use/abuse and anger merit inclusion in future investigations of aggression in this population.

Implications for Research and Practice

High rates of reported aggression indicate a need for more careful assessment of these behaviors in military and veteran populations. In the VA system, relationship and general aggression are rarely routinely assessed in PTSD clinics, which is problematic given the rates of aggression reported in this sample and the deleterious consequences of aggression (Campbell, 2002; Coker et al., 2002; Hathaway et al., 2000). Moreover, such assessments should lead to clinical interventions that address aggression and maintain safety for veterans and others exposed to the aggression. Unfortunately, to date there has been almost no empirical investigation of interventions designed to decrease aggression in veterans with PTSD, though some preliminary data suggest the possible benefit of anger reduction interventions (Chemtob, Novaco, Hamada, & Gross, 1997). Only one experimentally controlled study for the treatment of relationship aggression has been conducted in a military setting. Among a large sample of Navy couples in which the husband perpetrated intimate partner aggression, none of the year-long psychosocial treatment modalities were effective in reducing partner aggression compared to a no-treatment control group (Dunford, 2000). There is a clear need for controlled clinical trials investigating the efficacy of interventions designed to reduce aggression among veterans reporting significant PTSD symptomatology. Considering recent work suggesting the salience of PTSD symptoms with respect to partner aggression in nonveteran samples (Taft et al., 2008) and the general lack of evidence of the efficacy of abuser interventions (Babcock, Green, & Robie, 2004), such work may ultimately inform work with civilian perpetrators of aggression in addition to veterans.

Taken together, findings from the bivariate and regression analyses suggests the salience of PTSD symptoms reflecting hyperarousal and lack of control in particular, and are consistent with theoretical work suggesting that heightened arousal may lead to reduced ability to engage in self-monitoring or other inhibitory processes that otherwise restrain aggression (Novaco, Chemtob, Follette, Ruzek, & Abueg, 1998). Findings suggest the particular relevance of stress reduction interventions and those designed to deescalate conflict during times of high physiological and emotional arousal, as well as those that target impulsivity, social information processing deficits, and behavioral dyscontrol. This is not an exhaustive list of intervention strategies that may be useful for preventing and treating aggressive behavior, however, as interventions targeting PTSD symptoms more directly and/or broader relationship issues may also be indicated. One recent study found that anger and violence was one of the most common reasons for entering couples therapy among veterans with PTSD (Sherman, Sautter, Jackson, Lyons, & Han, 2006), suggesting that such problems are often encountered within the couples therapy context. It is hoped that the current investigation will stimulate further work in understanding the nature of aggression in this

population and its prevention, and will ultimately assist in leading to enhanced services provided for military veterans and their families.

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